

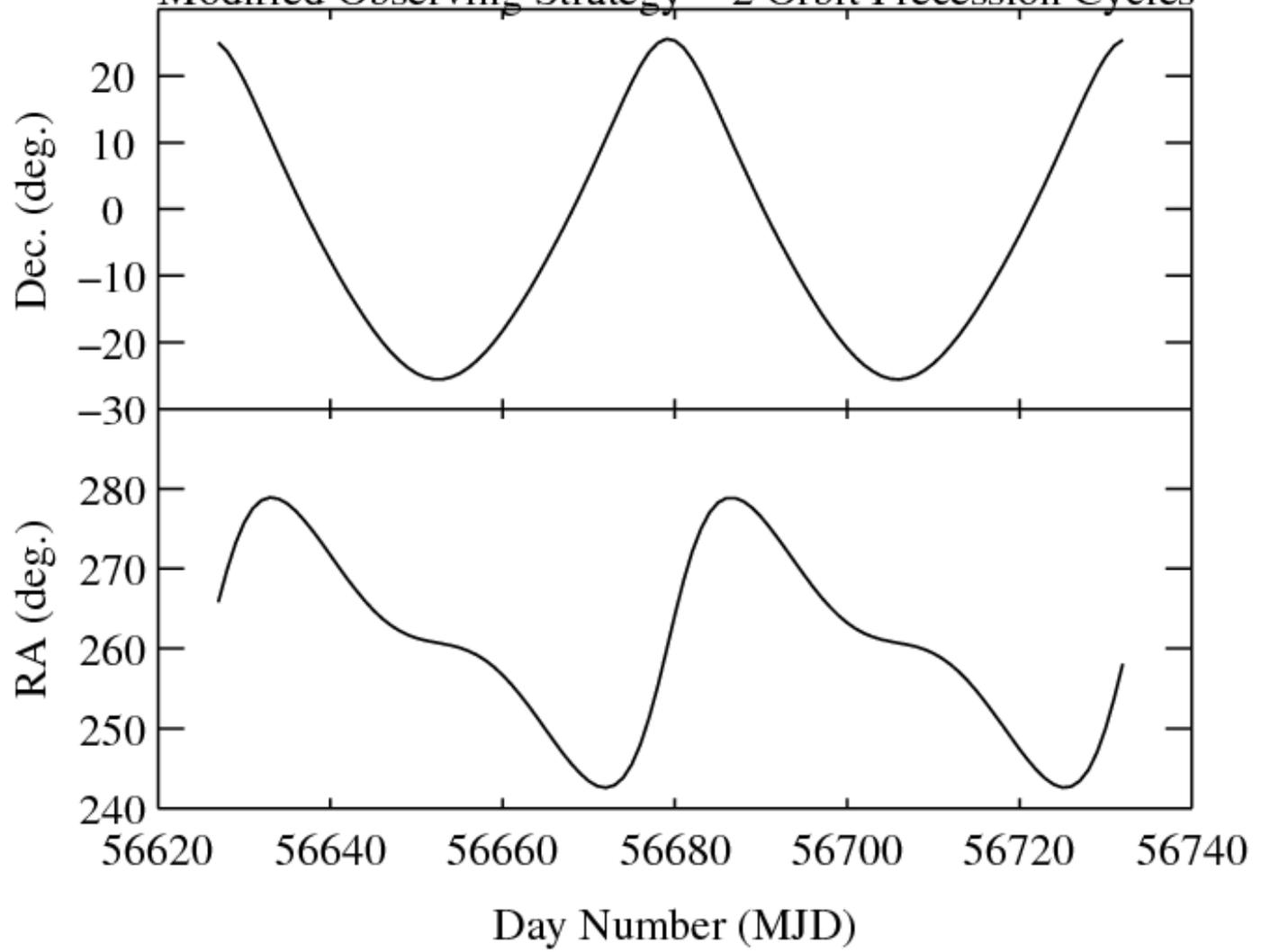
# Implementing the Modified Observing Strategy

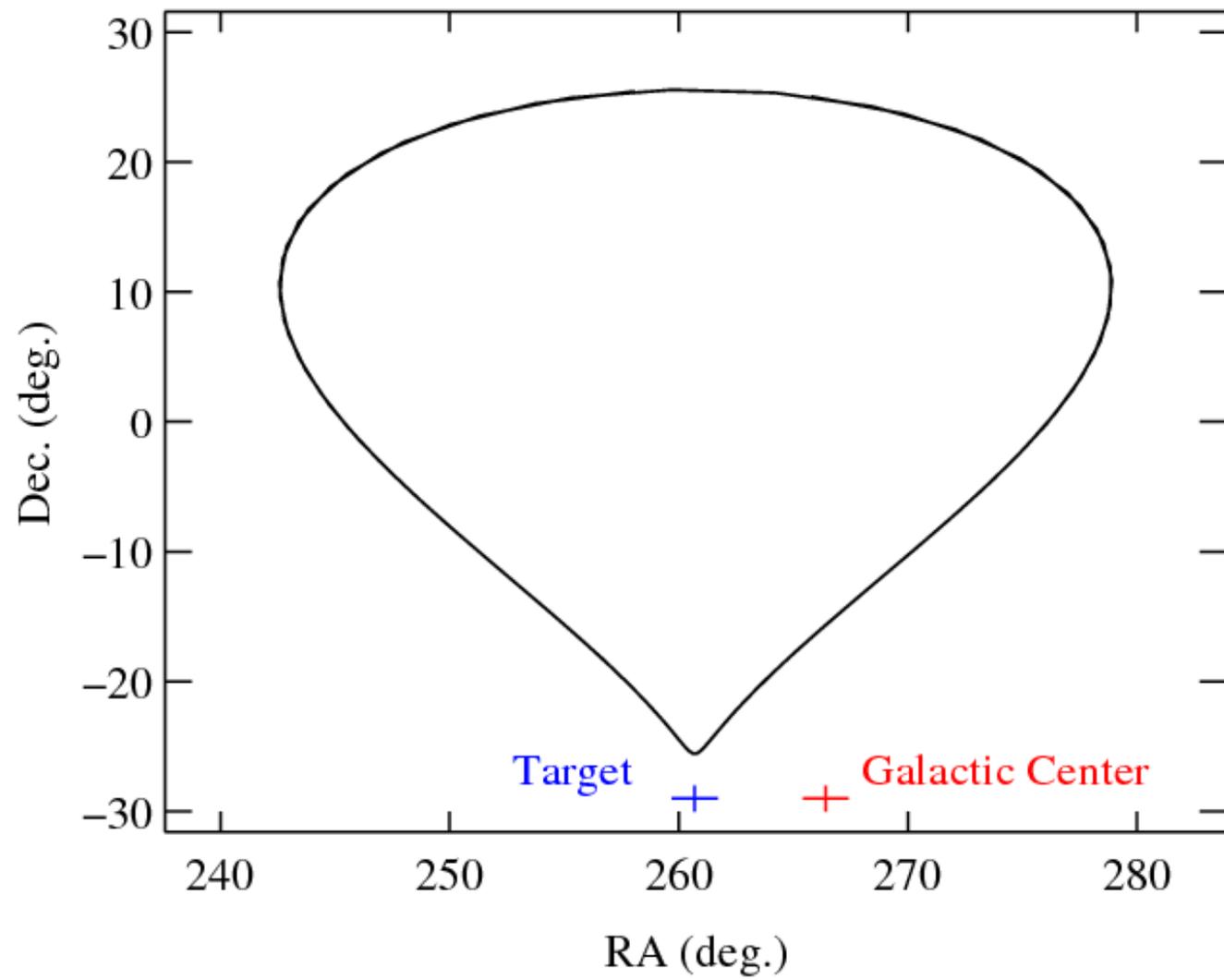
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For FSSC Operations

# New Observing Mode

- Increase exposure of Galactic center while continuing all-sky observations.
- Galactic center (offset by  $5^\circ$  in RA) is the target, but pointing position is kept on orbit plane.
- Interleave with regular sky survey mode during target occultations.
- Initial scheme. (RA fixed):
  - $\text{Dec} = (\text{pole\_dec} - 90) * \cos(\text{RA} - \text{pole\_RA})$
- Updated scheme:
  - $\text{Target} = (\text{Pole} \times \text{Target}) \times \text{Pole}$
  - (Variables are vectors, “x” = cross product.)
- Update pointing direction once per day.

Modified Observing Strategy – 2 Orbit Precession Cycles





# Status

- Observations with modified strategy started Dec. 5.
- But interrupted by TOO observations of Nova Cen 2013 from Dec. 6 - Dec. 10.
- Now resumed modified strategy observations.

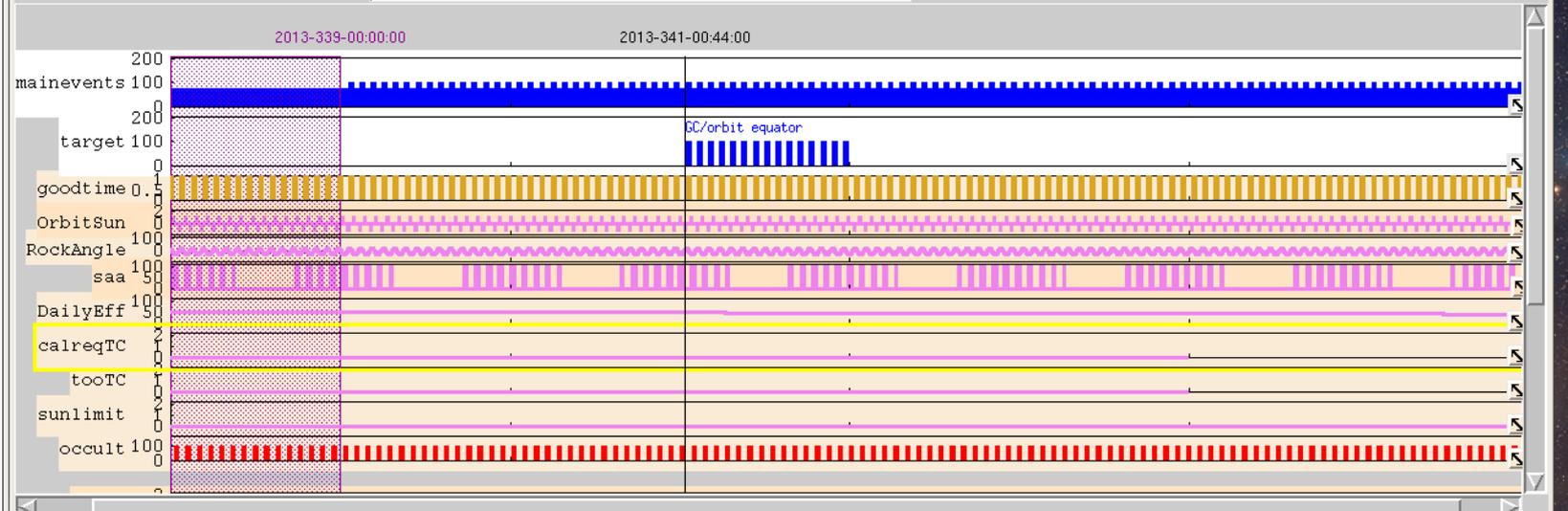
# Implementation

- Takes more effort to schedule than previous simple sky survey. However, time is manageable.
  - Expect some speed-up as we complete one precession cycle and can “recycle” target positions.
- More complicated scheduling gives more potential for errors:
  - timelines double-checked by second scheduler
  - script planned to do checks on timeline e.g. “sanity” of pointing positions, phasing of rock profile.

TAKO - GLAST Target Scheduling Tool

File Plotting Target Schedule Canvas Help  
 File: /Home/lhea2/gsscops/TAKO.eval/targ\_week288\_Preliminary\_02\_DB.tcl  
 Start: 2013-338-00:00:00 Stop: 2013-346-00:00:00 Week: 288 Phase: Preliminary State: Working

2013-338-00:00:00 2013-346-00:00:00 MJD: 56637.9421338156  
 Time: 2013-345-22:37:00



obs_number	s	mode	prop_ID	target_ID	type	segment	PI	RA	dec	ARR	target_name	duration	week	comment	offse	scheduled	star
060405-15-1	s	profile	060405	15	Survey	1	Fermi				profile week 288	5000.280	288	50deg 6am rock.	221.760	2013	
060604-1-1	s	pointed	060604	1	POINTED	1	Fermi	278.50000	13.78000	LOW	GC/orbit equator	45.000	288	2013:339 -15 oi	33.170	2013	
060604-2-1	s	pointed	060604	2	POINTED	1	Fermi	278.90000	10.89000	LOW	GC/orbit equator	45.000	288	2013:340 -15 oi	32.088	2013	
060604-3-1	s	pointed	060604	3	POINTED	1	Fermi	278.70000	8.01000	LOW	GC/orbit equator	45.000	288	2013:341 -15 oi	31.727	2013	
060604-4-1	s	pointed	060604	4	POINTED	1	Fermi	278.14000	5.19000	LOW	GC/orbit equator	45.000	288	2013:342 -15 oi	30.951	2013	
060604-5-1	s	pointed	060604	5	POINTED	1	Fermi	277.20000	2.44000	LOW	GC/orbit equator	45.000	288	2013:343 -15 oi	30.720	2013	
060604-6-1	s	pointed	060604	6	POINTED	1	Fermi	276.02000	-0.23000	LOW	GC/orbit equator	45.000	288	2013:344 -15 oi	30.348	2013	
060604-7-1	s	pointed	060604	7	POINTED	1	Fermi	274.67000	-2.81	LOW	GC/orbit equator	45.000	288	2013:345 -15 oi	29.746	2013	

Adjust Start Time: 0  
 Adjust Duration (ksec): 45.00000  
 Configure Labels  
 Nudge slightly earlier Nudge using slider Nudge slightly later  
 -1 min Apply Slider +1 min  
 Reset Selection Target Selection  
 Advanced Selection Show Mission Week

```

2013-310-14:43:47 Using ephemeris routine "xyzll_eph" to load file: /data/ops/opsdata/current/ephemeris/GLAST_EPH_2013308_2014003_00.txt
2013-310-14:43:47 Ephemeris is loaded.
2013-310-14:43:48 No TDRSS Schedule files are selected
2013-310-14:43:48 For eclipse constraint: using /data/ops/opsdata/current/predicts/eclipse/G2013308SUN.00
2013-310-14:43:48 Global constraints have been loaded.
2013-310-14:43:48 Generating Profile Survey Observation coordinates for 194 observations
2013-310-14:46:28 Updating the graphs...
2013-310-14:46:39 Target database is loaded from /Home/lhea2/gsscops/TAKO.eval/targ_week288_Preliminary_02_DB.tcl
    
```